

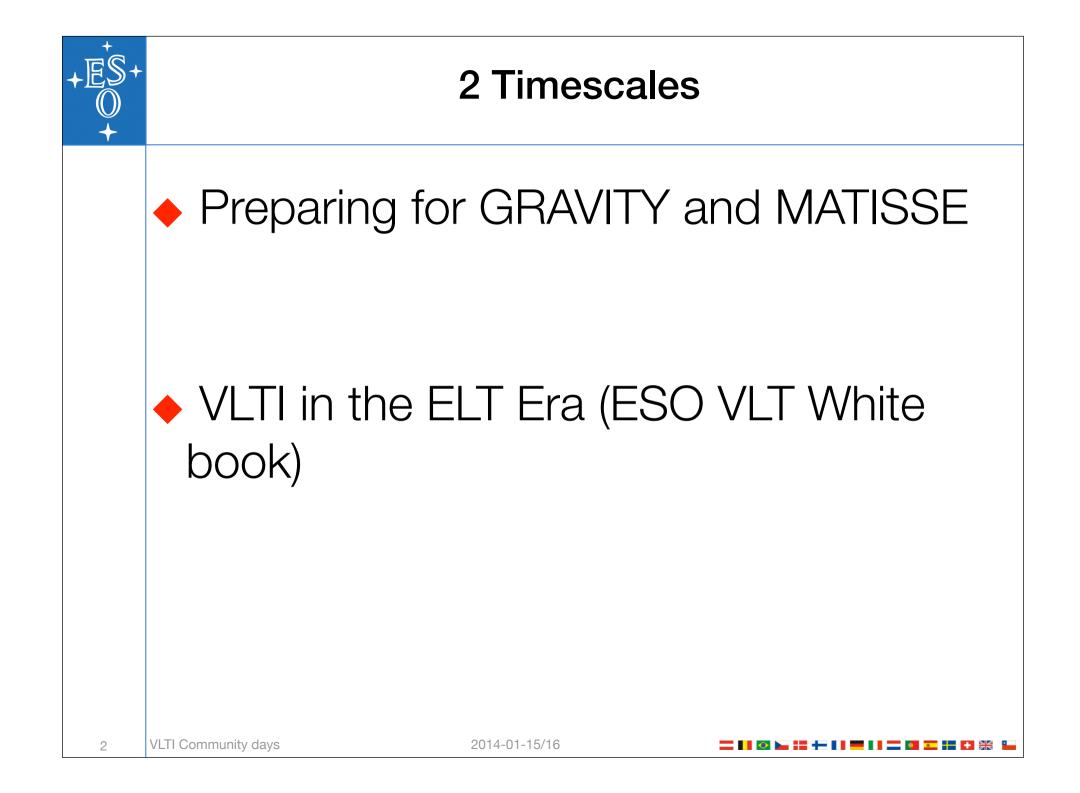
A plan for the VLTI

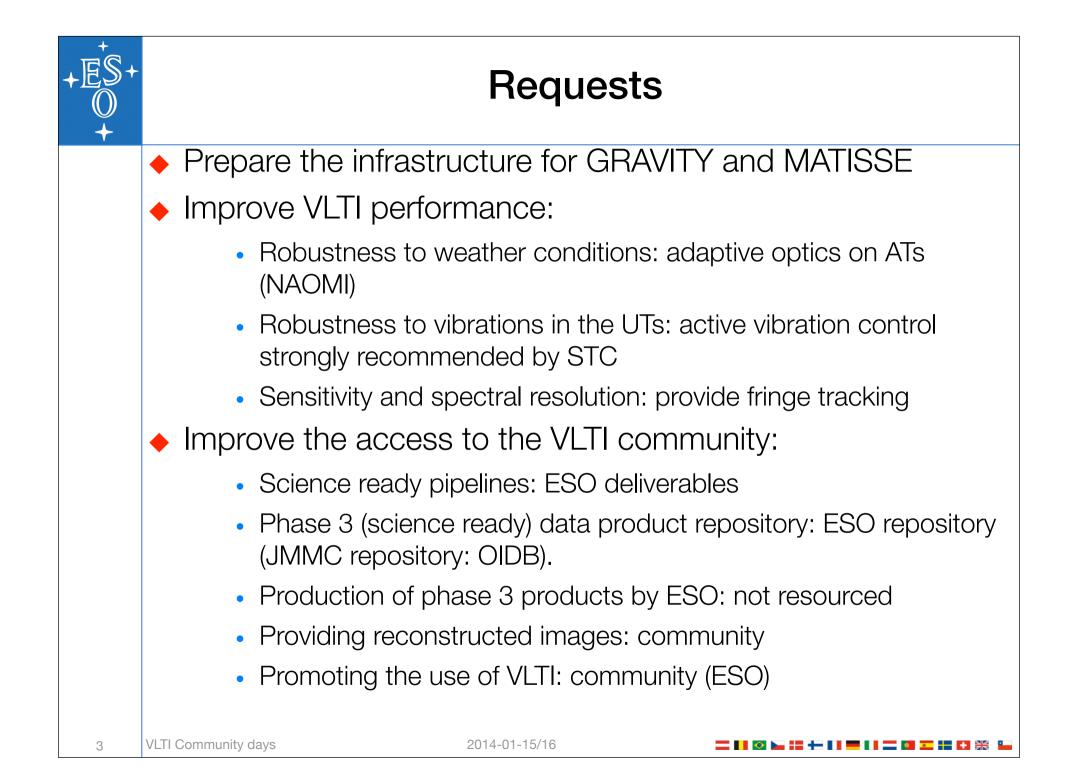
Grenoble - 15/16 January 2014

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An important effort

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	NOW	Status
	MIDI	Removed in P94
	PIONIER	Removed in P94
	AMBER	Stays until:
	FINITO	Stays if AMBER stays
	NAOMI	PDR end of 2014 ?
	VIBRATION	No project yet
	GRAVITY	PAE + shipment end of 2014
	MATISSE	GRAVITY + 1yr ?
	PRIMA	Decision February 2014
	2GFT	Delayed 2016 ?
Need for a holistic technical implementation plan		nical implementation plan
4	VLTI Community days 2014-01-15/1	6

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Details

PRIMA-Astrometry:

- Commissioning process interrupted 2011;
- Switched to "engineering mode" to enable "experimental" astrometry and evaluate performance;
- Conclusion of engineering period: system as designed can't deliver the requested performances for science case. Need an improved baseline calibration.
- Gate review principle endorsed by ESO management and approved by STC: 29/30 january
 - Non-ESO board;
 - Validity of PRIMA recovery plan evaluated (technical, resources, managerial)
 - · Pertinence of science case in the exoplanet context.
- Based on review, the ESO management will take the decision to continue or not PRIMA-Astrometry

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Details

PIONIER:

- Recommended by STC, principle of its extension approved by Paranal director pending status clarification and agreement with IPAG.
- Technical solution to relocated PIONIER proposed by Paranal: no resources.
- Phase 1: If implemented will remain one/two years with current status.
- Phase 2: Service mode ?
- Phase 3: Upgrade (J, medium resolution)?

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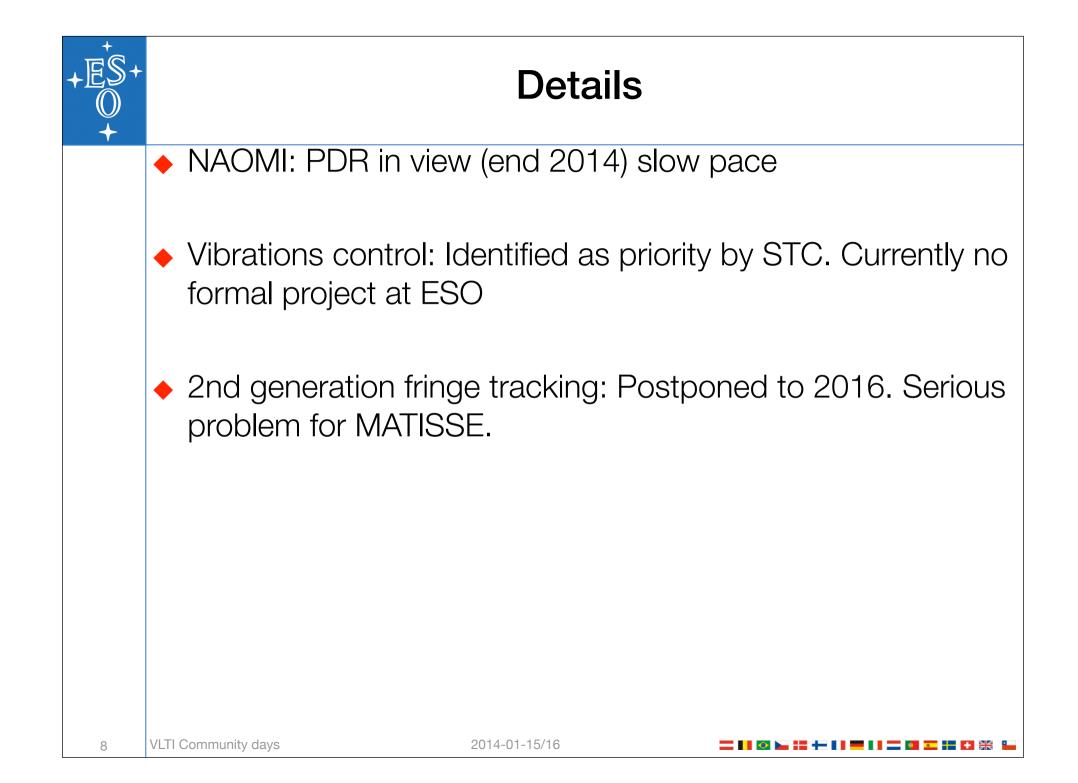


Details

AMBER

- Can stay after the lab modification;
- Aging instrument
- Drop in number of night requested (end of its life as it is ?)
- Will it be competitive at the time GRAVITY comes is offered?
- Spot could be used for J,H + 4T + spectral resolution ?
- What do we do with AMBER ?

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The future of VLTI

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VLTI strengths

- The best angular resolution accessible in Europe (for a long time);
- After a huge investment it is finally working well
- AT sub array
- Two new instruments coming;
- ESO (service mode, archives, maintenance, stability)
- An untapped potential in the study of stellar environments and AGN;
- An untapped potential in the study of multiplicity (massive stars, brown dwarf, ysos)
- An untapped potential in the study of temporal variability (ysos, novae, evolved stars Bes)
- An untapped potential for creativity (GRAVITY)?

VLTI Community days

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VLTI strengths

- Workhorses topic that appear in almost all prospective exercices e.g Astronet, NASA, US decadal (YSOs and AGNs) with growing interests from the community.
- ♦ A very active community, well organized (schools, EII ...)
- A unique potential for community growth (e.g PIONIER days)
- Entire bandpasses unexplored (can be opened for 1Meuro);
- JMMC: a community center that develops useful software for the community with high reactivity.
- An untapped potential of synergy with ALMA
- Optical interferometry is a serious contender to become the post-ELT ground based optical facility (ok we are speaking about decades ...)



VLTI weaknesses

- The community is small and partly interferocentric;
- The accessibility to reduced data is a problem (prebiscit of PIONIER's black box + service package): 10 years after this is a problem.
- Long-baselines lacking: deficit of resolved stellar surfaces
- The funding context (ELT) is hostile
- ESO lack of flexibility
- The ESO current organisation context (no more Paranal VLTI, probably no more Garching VLTI) weakens the possibility to develop the VLTI in a holistic way (fragmentation)



Plans for the future

- Make GRAVITY and MATISSE a success
- Construct a real lobbying power (science based)
- Need for the presence of the VLTI in the VLT whitebook ("VLT in the ELT era" status not clear)
- Explore ways to accompany the VLTI user:
 - ARC-like center ? JMMC, Ell funding
- High dynamic binary explorer (4T, L band (nulling?), precision closure phase)
- J, H with medium resolution imager (molecular bands in cool atmospheres, envelops, Paschen Beta spatially resolved mass accretion/mass loss, radius-luminosity)
- Very high spectral resolution in the visible, 4T: link with asteroseismology?,
- 6 telescope imager? limitations in imaging power clearly visible, the necessity to tackle temporary varying processes.
- Heterodyne interferometry at Paranal?

VLTI Community days

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A POSSIBLE roadmap

- 2014: Start community discussion on VLTI "nodes"? (EII)
- 2015: Stellar physics 2.0 workshop (short wavelengths oriented) with VLTI whitebook in mind?
- 2016: removal of AMBER
- 2016: decision on fringe tracker solution
- 2018: decision on PIONIER++ (J,H Medium resolution)
- 2018: decision on Binary Hunter (BROWNIE)
- 2020s GRAVITY/MATISSE return of experience in imaging: should we go 6T?



Discussion

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Questions ?

Period 94 shutdown tbc

- What should we do with AMBER?
- How does the community structures itself (inspiration from ALMA?):
 - to interact with ESO (e.g: future of operations, decision on AMBER)
 - to prepare accompany GRAVITY and MATISSE: ARC (?)
 - Xavier Haubois (JMMC)
 - What European initiatives ?
- How to you see the future of VLTI ?
 - A possible Roadmap:
 - 2014: Start community discussion on VLTI "nodes"? (EII)
 - 2015: Stellar physics 2.0 workshop (short wavelengths oriented) with VLTI whitebook in mind?
 - 2016: removal of AMBER
 - 2016: decision on fringe tracker solution
 - 2018: decision on PIONIER++ (J,H Medium resolution)
 - 2018: decision on Binary Hunter (BROWNIE)
 - 2020s GRAVITY/MATISSE return of experience in imaging: should we go 6T?
 - Connexion with PFI ?

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